

CLAIMS:

1. Panel-shaped acoustic wave generator (1A; 1B; 101), comprising:
at least one plate (2, 3; 102, 103);
acoustic transducer means (4; 140) for causing said plate to vibrate;
feedback means (10) for generating a feedback signal and
5 comprising a motion sensor (9) having at least one sensor component (11, 12; 14; 111B, 112B) mechanically coupled to said plate (2, 3; 3; 102, 103).
2. Wave generator according to claim 1, the at least one plate (2, 3; 102, 103) comprising a first plate (2; 102) and a second plate (3; 103) arranged substantially parallel at a
10 distance (D) from each other;
said motion sensor (9) comprising a first sensor component (11; 111B) mechanically coupled to the first plate (2; 102) and a second sensor component (12; 112B) mechanically coupled to the second plate (3; 103).
- 15 3. Wave generator according to claim 1, wherein said motion sensor (9) comprises a reference component (5) cooperating with said one sensor component (14), said reference component (5) preferably being a third plate arranged substantially parallel to said one plate (3) at a distance therefrom.
- 20 4. Wave generator according to claim 1, wherein said at least one sensor component (11, 12; 14; 111B, 112B) is integrated in the corresponding plate (2, 3; 3; 102, 103).
- 25 5. Wave generator according to claim 2, wherein said feedback means (10) are adapted to generate a feedback signal (S_A) representing a relative motion of at least a portion of the first plate (2; 102) with respect to at least a portion of the second plate (3; 103).

6. Wave generator according to claim 3, wherein said feedback means (10) are adapted to generate a feedback signal (S_A) representing a relative motion of at least a portion of said plate (3) with respect to said reference component (5).

5 7. Wave generator according to claim 2, wherein said motion sensor (9) is a capacitive sensor.

8. Wave generator according to claim 2, wherein said first and second plates (102, 103) comprise a front plate (103) and a back plate (102), respectively, of a display 10 device (100) comprising an array of display cells (110), each display cell (110) comprising a first electrode (111) connected to said back plate and a second electrode (112) connected to said front plate with a dielectric medium (104) arranged between said two electrodes; and wherein said motion sensor (9) is an integrated sensor comprising at least a part of at least one display cell (110B) of the display device.

15 9. Wave generator according to claim 8, wherein said acoustic transducer means (140) are integrated transducer means comprising at least a part of at least one display cell (110A) of the display device.

20 10. Wave generator according to claim 9, wherein said integrated motion sensor (9) comprises a first group (119) of display cells (110B), and wherein said integrated transducer means (140) comprise a second group (141) of display cells (110A), said first and second groups (119, 141) differing from each other.

25 11. Wave generator according to claim 8, wherein the display device (100) comprises a plurality of spacers (105) between the said plates (102, 103); wherein the density of spacers (105) in a display area (151) corresponding with sensor cells (110B) is less than the density of spacers (105) in regions outside said display area (151).

30 12. Wave generator according to claim 8, wherein said display device (100) is a liquid crystal display device comprising a liquid crystal layer arranged between said two plates (102, 103).

13. Wave generator according to claim 1, being subdivided into a plurality of sections (150), each section (150) comprising an associated acoustic transducer means (140) and at least one associated feedback means (151), wherein a drive signal for an acoustic transducer means (140) of a section (150) is generated on the basis of the feedback signal from the corresponding feedback means (151).

14. Electronic apparatus (200), comprising:
a wave generator according to claim 1;
an acoustic driver (AD) comprising:
10 - a signal input for receiving an input signal (S_{IN});
- a feedback input for receiving a feedback signal (S_P) from the feedback means (110B);
- a drive output coupled to an input of the acoustic transducer means (110A);
15 the acoustic driver (AD) being adapted to generate at its drive output a corrected drive signal (S_D) on the basis of the input signal (S_{IN}) and the feedback signal (S_P).

15. Method for generating sound using a panel-shaped acoustic wave generator (1A; 1B; 101) comprising two plates (2, 3; 102, 103) arranged substantially parallel at a 20 distance from each other;
the method comprising the step of generating a feedback signal (S_A) representing a relative motion of at least a portion of one of said plates with respect to at least a portion of the other of said plates.

25 16. Method according to claim 15, wherein said feedback signal (S_A) is generated using a capacitive motion sensor (9) having sensor components (11, 12; 111B, 112B) mechanically coupled to said plates (2, 3; 102, 103).